

FISHERY MANAGEMENT PLAN
FOR THE
SNOW CRAB COMMERCIAL FISHERY
IN THE BERING SEA, 2000

by

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and

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INTRODUCTION

This fishery management plan is intended to provide insight and background information into the open access Bering Sea District snow crab *Chionoecetes opilio* fishery. In addition to the open access fishery there is a community development quota fishery. After reviewing this management plan fishers and members of the industry should have a better understanding of the general area, historical background of the open access fishery, current management practices and policies used by the Alaska Department of Fish and Game (ADF&G) concerning the fishery.

Description of Registration Area and Statistical Areas

The snow crab fishery occurs in the Bering Sea District of Tanner Crab Registration Area J and includes all waters of the Bering Sea north of the latitude of Cape Sarichef at 54°36' N. lat. and east of the U.S.-Russian Convention Line of 1867. This district is divided into Eastern and Western Subdistricts by a line at 173° W. long. (Figure 1).

This management area is divided in statistical areas for catch reporting purposes. Each statistical area encompasses one degree of longitude by one half degree of latitude (Figure 2). All commercial removals of snow crab (including deadloss) are reported to ADF&G in reference to these statistical areas.

Historical Fishery Perspective

Snow crab landings were first documented as bycatch in the Tanner crab *Chionoecetes bairdi* fishery in 1977/78 season, when a total of 1.7 million pounds was harvested (Table 1). The ADF&G first initiated guideline harvest levels (GHL) for snow crabs in 1981 using data collected during the National Marine Fisheries Service (NMFS) Eastern Bering Sea Trawl Crab Survey. In 1981 the GHL range was 39.5-91.0 million pounds and the commercial harvest was 52.7 million pounds. For the next three years the commercial harvest was below 30 million pounds each year. In 1985 the harvest rose to 66 million pounds. Harvest of snow crab steadily increased each year until it peaked in 1991 at 328.6 million pounds. After 1991, snow crab stocks continually declined, and by 1996 the harvest was 65.7 million pounds. During 1997 and 1998 the GHL increased and in 1998 the commercial harvest reached 243.3 million pounds. The 1999 GHL was set at 186.2 million pounds.

REGULATIONS

Area J is a nonexclusive registration area. A Tanner crab vessel validly registered for a nonexclusive registration area may not be used to take Tanner crabs in a superexclusive registration area but may register to fish in other nonexclusive registration areas during the same registration year as provided in 5 AAC 35.005 (c) REGISTRATION AREAS ESTABLISHED. The Bering Sea snow crab fishery opens at 12:00 noon. The fishery is closed by emergency order when the GHL is achieved or when stock status indicators, such as poor fishery

performance or excessive catch of undersized males or female crabs, indicate a closure is in order to protect the long term health of the stock. Specific regulations governing snow crab fishing in the Bering Sea District begin under 5 AAC 35.001 TANNER CRAB FISHERY on page 161 of the 1999-2000 Commercial Shellfish Fishing Regulation booklet (ADF&G 1999). Some more pertinent regulations are summarized below. This section does not include all regulations pertaining to the Bering Sea District. Fishers may obtain a complete regulation booklet from an ADF&G office. For additional information on regulations pertaining to the Bering Sea snow crab fishery, contact the ADF&G office in Dutch Harbor or Kodiak.

Pot Limits and Legal Gear

In Spring of 1993 the Alaska Board of Fisheries (BOF) established pot limits based on vessel size for the Bering Sea snow crab fishery. Vessels in excess of 125 feet are limited to 250 pots and vessels under 125 feet overall length, were limited to 200 pots. Unlike the Bristol Bay red king crab fishery, these pot limits are not adjusted based on the GHL or altered by the number of vessels registered for the fishery.

Each pot in a vessel's legal complement of gear must have an identification tag on the main or trailer buoy. Buoy tags are available at the Dutch Harbor and Kodiak offices of ADF&G for \$2.00 each. As part of the total allowable number of pots, vessels are allowed to fish a maximum of 20 pots for Pacific cod for use as bait. Cod pots must conform to the regulations in 5 AAC 35.525 LAWFUL GEAR FOR REGISTRATION AREA J (4) (d). These pots must also be tagged with ADF&G issued buoy tags.

Regulations regarding pot marking can be found in 5 AAC 35.526 TANNER CRAB POT MARKING REQUIREMENTS FOR REGISTRATION AREA J. All pots must be tagged at the time of tank inspection and remain tagged throughout the fishery. The vessel operator is responsible for all tagged gear and insuring that tags are affixed to gear in a way to minimize tag loss.

Pots which lose tags should be set back into the water with all bait and bait containers removed and all doors secured open. Fishers should IMMEDIATELY report, to Fish and Wildlife Protection, the exact location of each pot which has lost the ADF&G issued buoy tag. Lost tags should be replaced as soon as possible. Buoy tags lost during the season may be replaced according to the provisions of 5 AAC 35.526 (b) TANNER CRAB POT MARKING REQUIREMENTS FOR REGISTRATION AREA J. Replacement tags are only issued if the vessel operator and three crewmembers submit sworn affidavits in person at the ADF&G office in Dutch Harbor, describing how tags were lost and listing the number of each lost tag.

Legal snow crab pots can be no more than 10 ft long by 10 ft wide by 42 in high with rigid tunnel eye openings that individually are no more than 3 inches in any one dimension with tunnel eye perimeters that individually are more than 36 in, or pots that are no more than 10 ft long by 10 ft wide by 42 in high and that tapers inward from it's base to a top that consists of one horizontal opening of any size. A more complete description of legal gear for the fishery is provided in 5 AAC 35.525 LAWFUL GEAR FOR REGISTRATION AREA J. All pots used in the fishery must have at least 1/3 of one vertical face of the pot composed of not less than 5 in stretched mesh webbing, or have no less than 4 circular escape rings of no less than 3 ¾ in inside

diameter installed in the vertical plane to permit the escapement of undersized and female snow crabs as required by 5 AAC 35.525 (b) (2). All pots must also be equipped with a biodegradable escape mechanism as described in 5 AAC 39.145 ESCAPE MECHANISM FOR SHELLFISH AND BOTTOM FISH POTS.

Registration, Tank Inspections and Gear Operations

In addition to vessel registration requirements with the Commercial Fisheries Entry Commission (CFEC) listed under 5 AAC 39.120 REGISTRATION OF COMMERCIAL FISHING VESSELS, a vessel used to take snow crab in the Bering Sea District must first obtain a registration certificate from the ADF&G (5 AAC 35.020 TANNER CRAB AREA REGISTRATION). The registration year for snow crab vessels is August 1- July 31. In order for a registration to be valid, a vessel must first have all holds and/or live tanks inspected by an ADF&G representative as specified in 5 AAC 35.030 INSPECTION REQUIREMENTS. Hold inspections are required to insure that vessels are not in possession of crabs prior to the start of a fishery. Vessels intending to participate in the Bering Sea snow crab fishery are required to register and have their holds inspected in Dutch Harbor, Akutan, or King Cove beginning 48 hours prior to the start of the season or 24 hours prior to the season in Saint Paul, according to provisions of 5 AAC 35.555 (b) INSPECTION REQUIREMENTS FOR REGISTRATION AREA J. In addition to the normal 48 hour tank inspection window, pre-tank and gear inspections are available to facilitate gear loading and expedite the registration validation process. ADF&G staff in all tank inspection ports, except Saint Paul, may inspect holding tanks and gear on vessels up to seven days prior to the normal tank inspection period. If all gear on a vessel at the time of the pre-tank inspection is in compliance with registration area gear requirements, and all tanks are confirmed to contain no crabs, a pre-tank inspection certificate is issued to the operator of the vessel. Leaving port or placing gear on the vessel that is not in compliance with area registration gear requirements invalidates the pre-inspection certificate. If the pre-tank inspection certificate is invalidated for any reason the vessel is then required to undergo a regular tank inspection during the 48 hour tank inspection window. Operators or interim-use card holders from vessels which have received a pre-tank and gear inspection certificate may proceed to a pre-designated "Quick Registration" signing location. By providing the ADF&G employee at this location with the certificate, vessel registration, and interim-use card for Registration Area J Bering Sea District the vessels registration can be validated. Quick Registration signing locations are announced by new release and during pre-tank inspections. Once a vessel's registration has been validated, the vessel is free to leave port and proceed to the fishing grounds. The Pre-tank inspection and Quick Registration validation process greatly expedites tank inspections and normally enables the majority of the fleet to complete the registration validation process within one hour of the start of regular tank inspections.

United States Coast Guard (USCG) personnel now accompany ADF&G personnel during some tank inspections. USCG representatives review vessel stability requirements and certified letters of stability to ensure that the number of pots carried by a vessel does not exceed the vessel's stability requirements. Questions regarding USCG stability checks should be addressed to: Lieutenant Commander Steve P. McCleary, Marine Safety Detachment, USCG, Dutch Harbor, (907) 581-3468.

Landing Requirements

For a fishing vessel in the Eastern Subdistrict of the Bering Sea District, the landing deadline is 24 hours following the fishery closure, except that a owner, or the owner's agent, of a vessel delivering to King Cove or ports east may request additional time to deliver Tanner crabs by contacting a representative of the ADF&G office in Dutch Harbor within 24 hours of the closure. A reasonable amount of additional time will be provided to allow the vessel to proceed directly to the processing location. From the Western Subdistrict of the Bering Sea the landing deadline is 72 hours if delivery is made to a location west of King Cove. If delivering to King Cove and ports east the same procedure must be followed as mentioned for the Eastern Subdistrict of the Bering Sea. Additional information concerning landing requirements for vessels fishing for Tanner crabs in the Bering Sea can be found in 5 AAC 35.556 LANDING REQUIREMENTS FOR AREA J.

Pot Storage Requirements

To store pots legally, all doors must be secured open with bait and bait containers removed. In the Bering Sea District, pots may be stored in the waters of the Eastern Subdistrict north of 57° N. lat., south of 58° N. lat., east of 166° W. long., and west of 164° W. long., from January 1 through December 31. Pots may also be stored in waters deeper than 25 fathoms for ten days after the closure of the commercial snow crab fishery. In waters around the Pribilof Islands shoreward of the 25-fathom isobath pots may be stored only from September 1 through May 31, and pots may also be stored in the waters around the Pribilof Islands at any depth within five nautical miles from the shoreline of St. Paul or St. George Islands, or in waters that are not more than 35 fathoms deep for 14 days before the scheduled opening date, and for 14 days after the closure of the snow crab season. Additional provisions of these regulations can be found in 5 AAC 35.527 TANNER CRAB POT STORAGE REQUIREMENTS FOR REGISTRATION J.

Legal Size Limits

Male snow crabs and male hybrid Tanner crabs conforming to the identification criteria described in 5 AAC 35.521 (b) IDENTIFICATION OF BERING SEA TANNER CRAB must be 3.1 inches (78 mm) or greater in shell width to be retained. This is measured at the widest point of the carapace. All female and undersized male crabs must be immediately returned unharmed to the sea, as outlined in 5 AAC 35.065 FEMALE AND UNDERSIZE TANNER CRAB.

HARVEST STRATEGY

Each year GHF's are based on yield and recruit calculations by NMFS. This strategy relies upon a 58% stock exploitation rate of male crabs over 4 inches (102 mm). This exploitation rate is based on males greater than four inches because processors do not want to purchase smaller crab. The 1999 NMFS survey indicated that the stock was 38% below the minimum stock size threshold. Because the stock was below the minimum stock size threshold the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) provided guidance to take a

precautionary approach towards rebuilding. Harvest cannot constitute overfishing. In this instance overfishing means a fishing mortality rate (F) equal to or greater than 0.3. The MSFCA also stipulates that fishery actions should not impact the stock's ability to recover.

The status quo harvest rate of 58% on males greater than or equal to four inches was initially halved for the 2000 snow crab fishery. The harvest rate of 29% resulted in a harvest rate on mature males that was still close to the long term average. Additionally, under assumptions of high natural mortality the 0.3 fishing mortality rate could be exceeded. Therefore the 29% harvest rate was further reduced by 25% to take into account handling mortality. The applied harvest rate of 22% results in a fishing mortality below the overfishing definition, is below the long term average harvest rate, is consistent with NMFS recommendations for implementing National Standard 1 of the MSFCA (Restrepo, et al. 1998), maintains normal sex ratios, and is manageable.

FISHERIES MANAGEMENT AND VOLUNTEER CATCH REPORTING

Prior to the 2000 season, the snow crab fishery has been managed using weekly catch reports. Provided by processors, these reports are augmented by fishery performance data provided by observers onboard catcher processors and floating processors. Due to the relatively low GHL, management of the 2000 fishery will be based on voluntary catch reports from fishers. These reports, sent each 24 hours by means of marine satellite telex or over single side band radio, are processed daily by ADF&G in Dutch Harbor. Vessel operators report number of pots hauled and number of legal crabs harvested for a preestablished 24 hour period. Inseason management allows the fishery manager to base management decisions on actual, real-time fishery performance and weather conditions. Operators of all validly registered vessel are asked to participate in voluntary catch reporting at the time of tag purchase, registration and/or tank inspection. Inseason information is used to monitor the daily harvest and to calculate daily catch rates used to project the date and time of the fishery closure. Once determined, the closure is announced to the fishing fleet over single side band radio (frequency 4125) and faxed or emailed to all major processors and industry groups.

In some years sea ice moves south and closes off major portions of productive fishing areas. In response ADF&G has developed criteria to open or reopen the affected areas as follows:

1. The opening or reopening will occur based on consultation with fishers and industry on a specified date after the leading ice edge has retreated to a specified latitude;
2. ADF&G will review on a weekly basis the position of the ice edge and provide adequate notice of a reopening;
3. Other criteria for opening or reopening is met as deemed necessary.

GUIDELINE HARVEST LEVEL AND OUTLOOK FOR THE 2000 FISHERY

Results from the 1999 NMFS survey of the Bering Sea indicates the population estimate of large male snow crabs ≥ 4 inches (102 mm) is approximately 94 million animals, a 63% decrease from the 1998 level of 255 million crabs. The number of small males (< 4 inches) was estimated at 517 million, a decrease of 49% compared to the 1,015 million crabs observed in 1998. The estimated population of large female snow crabs (≥ 2 inches) decreased 59% from 1.161 million in 1998, to 474 million in 1999 (Stevens et al. 1999).

The 2000 snow crab fishery will open at 12:00 on a specified date. The fishery will be managed inseason based on daily reports from fishers. The GHL is set at 28.5 million pounds, with the open access fishery expected to take 2 weeks to land 26.4 million pounds. After the closure of the open access fishery the CDQ fishery has 2.1 million pounds to harvest. Catch updates and the closure announcement will be provided to fishers via single side band radio (frequency 4125). Fishers should stay tuned to that frequency at all times as fishery updates could occur at any time and the time interval between the announcement and the fishery closure could be relatively short.

DEPARTMENT CONTACTS

Contacts for ADF&G in Dutch Harbor are Rance Morrison (rance_morrison@fishgame.state.ak.us), Area Management Biologist; Forrest Bowers (forrest_bowers@fishgame.state.ak.us), Assistant Area Management Biologist; Robert Gish, Crab CDQ and Groundfish Management Biologist; and Elizabeth Wilson, lead dockside inspector and sampler. The ADF&G phone number in Dutch Harbor is (907) 581-1239; the fax number is (907) 581-1572.

Department contacts in Kodiak are Wayne Donaldson (wayne_donaldson@fishgame.state.ak.us), Regional Shellfish Biologist; Dave Jackson (dave_jackson@fishgame.state.ak.us) Kodiak Island/Alaska Peninsula Area Shellfish Management Biologist, Mike Ruccio Assistant Area Shellfish Biologist. The ADF&G phone number in Kodiak is (907) 486-1840; the fax number is (907) 486-1824

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- Restrepo, V.R., G.G. Thompson, P.M. Mace, W.L. Gabriel, L.L. Low, A.D. MacCall, R.D. Methot, J.E. Powers, B.L. Taylor, P.R. Wade, and J.F. Witzig. 1998. Technical Guidance On the Use of Precautionary Approaches to Implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Technical Memorandum NMFS-F/SPO-##.
- Stevens, B.G., J.A. Haaga, and R.A. MacIntosh. 1999. Report to industry on the 1999 Bering Sea Crab Survey. (Alaska Fisheries Science Center) Processed Report.

Table 1. Bering Sea commercial snow crab harvest by season, 1977/78-1999.

Season	Number of			Harvest ^a (pounds)	Pots Pulled	Average		Deadloss (pounds)
	Vessels	Landings	Crab ^a			Weight (pounds)	CPUE ^b	
1977/78	15	38	1,267,546	1,716,124	13,247	1.4	96	0
1978/79	102	490	22,118,498	32,187,039	190,746	1.5	116	759,137
1979/80	134	597	25,286,777	39,572,668	255,102	1.6	99	228,345
1981	153	867	34,415,322	52,750,034	435,742	1.5	79	2,269,979
1982	122	803	24,089,562	29,355,374	469,091	1.2	51	1,092,655
1983	109	461	23,853,647	26,128,410	287,127	1.1	83	1,324,466
1984	52	367	24,009,935	26,813,074	173,591	1.1	138	798,795
1985	75	718	52,903,246	65,998,875	372,045	1.3	142	1,064,184
1986	88	992	76,499,123	97,984,539	543,744	1.3	141	1,378,533
1987	103	1,038	81,307,659	101,903,388	616,113	1.2	132	978,449
1988	171	1,285	105,716,337	134,060,185	776,907	1.3	136	3,260,020
1989	168	1,341	112,618,881	149,455,848	663,442	1.3	170	1,844,682
1990	189	1,565	128,977,638	161,821,350	911,613	1.3	141	1,796,664
1991	220	2,788	265,123,960	328,647,269	1,391,583	1.2	191	3,464,036
1992	250	2,763	227,376,582	315,302,034	1,281,796	1.4	177	2,325,852
1993	254	1,836	169,558,842	230,787,000	971,046	1.4	175	1,573,952
1994	273	1,293	114,779,014	149,775,765	716,524	1.3	160	1,799,323
1995	253	869	60,611,411	75,252,677	506,802	1.2	120	1,287,169
1996	234	766	52,912,823	65,712,797	520,651	1.2	102	1,333,014
1997	226	1,127	99,975,539	119,543,024	754,140	1.2	133	2,351,555
1998 ^c	229	17,671	186,543,734	243,341,381	891,268	1.3	207	2,893,945
1999 ^c	241	1,630	141,856,204	182,701,508	899,043	1.3	158	1,828,313

^aDeadloss included.

^bDefined as catch of legal crab per pot.

^cOpen access fishery only.

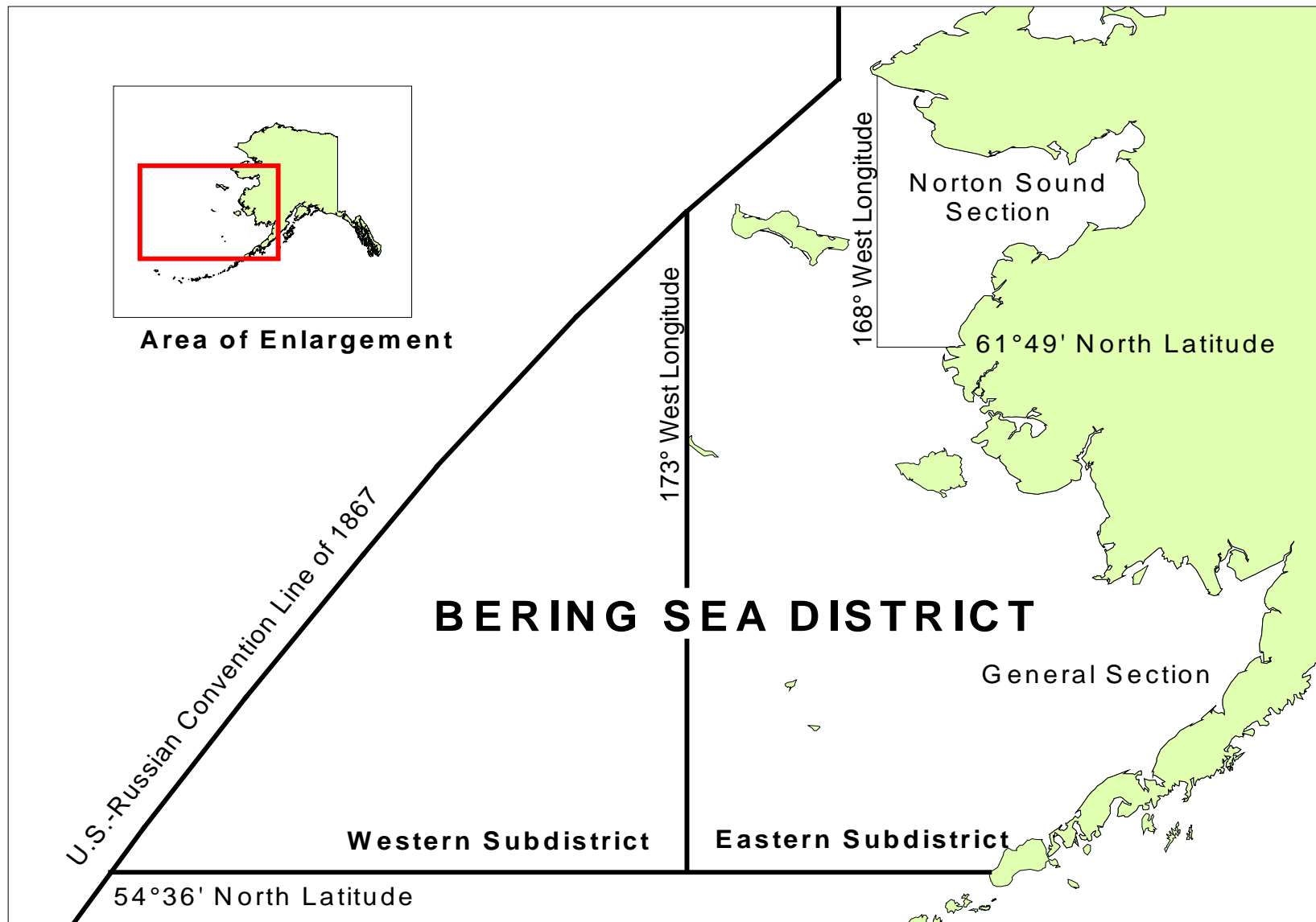


Figure 1. Bering Sea District of Tanner crab Registration Area J showing subdistricts and sections.

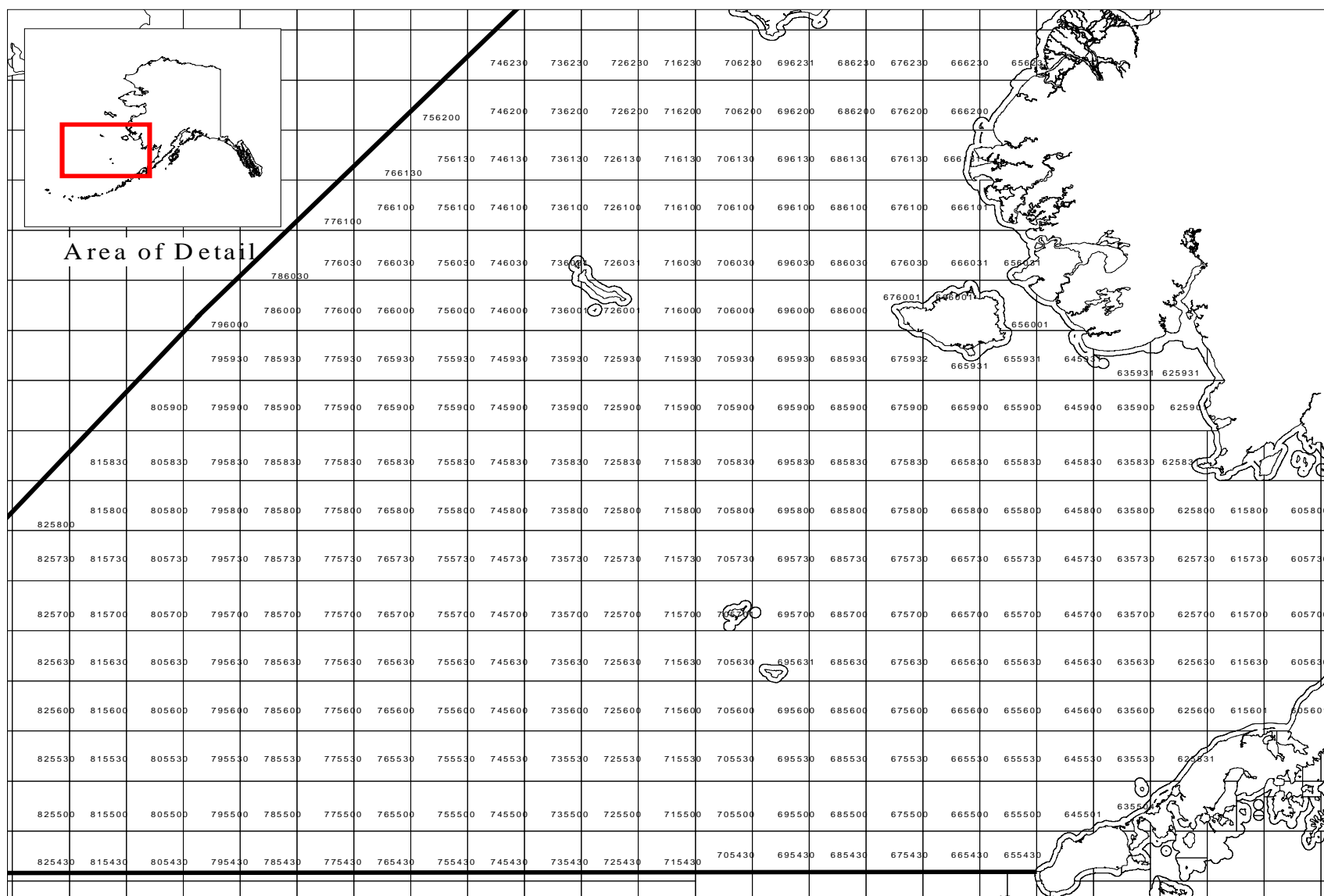


Figure 2. Bering Sea District of Tanner crab Registration Area J showing statistical areas.

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